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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,741	12/29/2003	Takahisa Ueno	075834.00457	2068

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ART UNIT	**PAPER NUMBER**
2622	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/747,741	UENO ET AL.	
	Examiner	Art Unit	
	LUONG T. NGUYEN	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-11 and 16-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-11 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/327,523.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/29/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/327,523, filed on 06/08/1999.

Claim Objections

2. Claims 9-11, 18 are objected to because of the following informalities:

Claim 9 (line 2), "each of which have" should be changed to --each of which has--.

Claim 9 (line 12), "to said vertical signal lines" should be changed to --to vertical signal lines--.

Claim 18 (line 2), "said amplifier" should be changed to --said amplifying element--.

Claims 10-11 are objected as being dependent on claim 9.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Gowda et al. (US 5,898,168).

Regarding claim 9, Gowda et al. discloses a solid-state imaging element, comprising:

unit pixels (cells 30, figure 3B), arranged in a matrix, each of which has a photoelectric conversion element (photodiode 26, figure 3B, column 4, lines 9-20), a transfer switch (FET 22, figure 3B, column 4, lines 9-36) for transferring charge stored in said photoelectric conversion element, a charge store part (circuit node 25, figure 3B, column 4, lines 37-62) for storing charge transferred by said transfer switch, a reset switch (reset transistor 21, figure 3B, column 4, lines 20-62) for resetting said charge store part, and an amplifying element (FET 23, figure 3B, column 4, lines 9-36) for outputting a signal in accordance with a potential of said charge in said charge store part;

a vertical scanning circuit (timing control logic 14', figure 3A, column 4, lines 1-8) for selecting pixels in units of rows by controlling a reset potential applied to selected ones of said reset switches (figures 5-6 and 11, column 4, lines 30+);

a horizontal scanning circuit (readout circuits 31_1 to 31_N and load transistors 28; figures 2, 3A, column 1, lines 50+; column 4, lines 9+; column 5, lines 30+) for sequentially selecting signals output to vertical signal lines (column buses 15j, figures 3A-3B, column 4, lines 9-62);

an output circuit (readout circuits 31_1 to 31_N and processing/image storage electronics 16, figures 2, 3A, column 1, lines 50+; column 6, lines 8+; column 5, lines 30+) for outputting signals selected by said horizontal scanning circuit,

wherein said unit pixels include a transfer selection switch (FET 22 employs both a charge transfer function and a pixel selection function, figure 3B, column 4, lines 20-62) column for selecting a transfer operation of said transfer switch.

Regarding claim 10, Gowda et al. discloses wherein said transfer selection switch makes a controlled input of said vertical selection pulses (column 4, lines 20-62).

Regarding claim 11, Gowda et al. discloses wherein said output circuit outputs signals read into said vertical signal lines in current mode (column 1, lines 28-62).

5. Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by Pain et al. (US 5,886,659).

Regarding claim 19, Pain et al. discloses a solid state imaging element (figures 1A-1C, 3A, 4; column 3, lines 55+; column 6, lines 10+) comprising:

a pixel (pixel in pixel array 410; figure 4; column 6, lines 50+) to which has a photoelectric transfer element (figures 2A, 3A; photodiode 210, photogate 310; column 6, lines 14-33), a transfer switch (transfer gate electrode 320, figure 3A; column 6, lines 25+) for transferring charge stored in said photoelectric transfer element, a charge store part (floating diffusion 330, figure 3A; column 6, lines 25+) for storing charge transferred by said transfer switch, a reset switch (reset electrode 340; figure 3A; column 9, lines 25+) for resetting said

charge store part, and an amplifying element (transistor 360, figure 3A; column 3; lines 55-60) for outputting signal in accordance with the potential of said charge store part to vertical signal lines (figures 3A, 4; column 6; lines 24+);

wherein negative voltage is applied to the gate of said reset switch (column 6, lines 40-43).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gowda et al. (US 5,898,168) in view of Miwada (US 5,306,932).

Regarding claim 16, Gowda et al. discloses a solid state imaging element (imager 20, figures 3A-3B) comprising:

a pixel (cell 30; figures 3A-3B; column 4, lines 9+) to which has a photoelectric transfer element (photodiode 26, figure 3B, column 4, lines 9-20), a transfer switch (FET 22, figure 3B, column 4, lines 9-36) for transferring charge stored in said photoelectric transfer element, a charge store part (circuit node 25, figure 3B, column 4, lines 37-62) for storing charge transferred by said transfer switch, a reset switch (reset transistor 21, figure 3B, column 4, lines 20-62) for resetting said charge store part, and an amplifying element (FET 23, figure 3B,

column 4, lines 9-36) for outputting signal in accordance with the potential of said charge store part to vertical signal lines (column buses 15j, figures 3A-3B, column 4, lines 9-62).

Gowda et al. fails to specifically disclose wherein said reset switch is configured of a depression type transistor. However, Miwada teaches the use of a depression type transistor in the solid-state imaging device as reset switch (figure 1, column 4, lines 50-55) for resetting the floating diffused region 7 so that deterioration of the dynamic range is prevented (column 3, lines 1-5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Gowda et al. by the teaching of Miwada in order to provide an electric charge transfer device free from deterioration of the dynamic range (column 3, lines 1-4).

Regarding claim 17, Gowda et al. discloses wherein said transfer switch is an enhancement type transistor (FET 22, figure 3B, column 4, lines 9-36).

Regarding claim 18, Gowda et al. discloses wherein said amplifier is an enhancement type transistor (FET 23, figure 3B, column 4, lines 9-36).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Akimoto et al. (US 4,809,075).

Shinohara et al. (US 5,698,844).

Merrill et al. (US 6,606,120).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN
08/04/07

Luonghura Nguyen

LUONG T. NGUYEN
PATENT EXAMINER